Medical Retina
Selected contributions from ESASO modules 2009 and 2010

Medical Retina

Volume Editors

Francesco Bandello  Milan
Giuseppe Querques  Paris

88 figures, 68 in color, and 10 tables, 2012
Contents

VII  List of Contributors
VIII  Foreword
   Guarnaccia, G. (Lugano)
IX  Preface
   Bandello, F. (Milan); Querques, G. (Paris)

1  Embryology and Anatomy of the Baby’s Posterior Segment
   Trese, M.T. (Rochester, Mich./Royal Oak, Mich.)
6  Blood-Retinal Barrier and Its Relevance in Retinal Disease
   Cunha-Vaz, J. (Coimbra)
11  Imaging the Retina
    Cunha-Vaz, J. (Coimbra)
16  Do We Need Fluorescein Angiography? Noninvasive Imaging of the Eye Fundus
    Cunha-Vaz, J. (Coimbra)
21  Treatment of Retinopathy of Prematurity
    Capone Jr., A. (Auburn Hills, Mich.)
25  Retinal Development and the Pathogenesis of Retinopathy of Prematurity
    Capone Jr., A. (Auburn Hills, Mich.)
30  Retinopathy of Prematurity: Cases and Diagnosis
    Trese, M.T. (Rochester, Mich./Royal Oak, Mich.)
35  Retinopathy of Prematurity: Laser Treatment and Intravitreal Injections
    Trese, M.T. (Rochester, Mich./Royal Oak, Mich.)
39  Vitreoretinal Surgery for Retinopathy of Prematurity
    Trese, M.T. (Rochester, Mich./Royal Oak, Mich.)
43  Proliferative Vitreoretinopathy
    Mateo, C.; Burés-Jelstrup, A. (Barcelona)
50  Inherited Retinal Pigmentary Degenerations and Inherited Macular Dystrophies
    Navarro, R.; Burés-Jelstrup, A. (Barcelona)
58  Pediatric Vitreoretinal Diseases Not Associated with Prematurity
    Capone Jr., A. (Auburn Hills, Mich.)
64 Other Vitreoretinal Pathologies in Infants
    Trese, M.T. (Rochester, Mich./Royal Oak, Mich.)

67 Vascular Anomalies of the Fundus Oculi: Diagnosis and Treatment
    Lanzetta, P.; Veritti, D. (Udine)

74 Retinal Artery Occlusion
    Bandello, F.; Battaglia Parodi, M. (Milano)

81 Retinal Artery Occlusion and Acute Choroidal Ischemia
    Gaudric, A. (Paris)

87 Ocular Ischemic Syndrome
    Bandello, F.; Battaglia Parodi, M. (Milano)

90 Diabetic Retinopathy
    Williams, G.A. (Royal Oak, Mich.)

99 Diabetic Macular Edema
    Williams, G.A. (Royal Oak, Mich.)

105 Proliferative Diabetic Retinopathy: Surgical Treatment and Handling of Intraoperative and Postoperative Complications
    Garcia-Arumi, J.; Boixadera, A.; Martinez-Castillo, V.; Zapata, M.A. (Barcelona)

111 Retinal Venous Occlusions: Diagnosis and Choice of Treatments
    Garcia-Arumi, J.; Badal, J.; Zapata, M.; Boixadera, A.; Martinez Castillo, V. (Barcelona)

120 Vitrectomy for Macular Hole
    Gaudric, A.; Tadayoni, R. (Paris)

125 Pathogenesis of Age-Related Macular Degeneration
    Zarbin, M.A. (Newark, N.J.)

134 Treatment of Dry Age-Related Macular Degeneration
    Zarbin, M.A.; Rosenfeld, P.J. (Newark, N.J.)

143 Myopic Macula
    Mateo, C.; Burés-Jelstrup, A. (Barcelona)

151 Fine-Needle Aspiration Biopsy in Intraocular Tumors
    Pelayes, D.E. (Buenos Aires/Lugano)

156 Subject Index
List of Contributors

Prof. Francesco Bandello  
Department of Ophthalmology  
University Vita-Salute  
Scientific Institute San Raffaele  
IT–20132 Milano (Italy)  
E-Mail bandello.francesco@hsr.it

Antonio Capone Jr., MD, FACS  
William Beaumont Hospital  
3535 W. 13 Mile Road, Suite 344  
Royal Oak, MI 48073 (USA)  
E-Mail acaponejr@arcpc.net

Prof. José Cunha-Vaz  
AIBILI  
Azínhaga de Santa Comba, Celas  
PT–3000–548 Coimbra (Portugal)  
E-Mail cunhavaz@aibili.pt

Jose Garcia-Arumi, MD  
Instituto de Microcirugía Ocular  
C/ Josep Maria Lladó nº 3  
ES–08022 Barcelona (Spain)  
E-Mail 17215jga@comb.es

Prof. Alain Gaudric  
Service d’Ophtalmologie  
Hôpital Lariboisière, AP-HP  
Université Paris 7 Diderot  
2, rue Ambroise Paré  
FR–75010 Paris (France)  
E-Mail alain.gaudric@lrh.aphp.fr

Paolo Lanzetta, MD  
Department of Ophthalmology  
University of Udine  
Piazzale S. Maria della Misericordia  
IT–33100 Udine (Italy)  
E-Mail paolo.lanzetta@uniud.it

Carlos Mateo, MD  
Instituto de Microcirugía Ocular  
C. Josep Maria Lladó 3  
ES–08035 Barcelona (Spain)  
E-Mail carlosmateo@me.com

Rafael Navarro, MD  
Instituto de Microcirugía Ocular  
C. Josep Maria Lladó 3  
ES–08035 Barcelona (Spain)  
E-Mail navarro@imo.es

Michael T. Trese, MD  
William Beaumont Hospital  
3535 W. 13 Mile Road, Suite 344  
Royal Oak, MI 48073 (USA)  
E-Mail mgjt46@aol.com

George A. Williams, MD  
Oakland University William Beaumont  
School of Medicine  
3535 W. 13 Mile Road #555  
Royal Oak, MI 487073 (USA)  
E-Mail gwilliams@beaumont.edu

Marco A. Zarbin, MD, PhD  
Institute of Ophthalmology and Visual Science-New Jersey Medical School  
Room 6156, Doctors Office Center  
90 Bergen Street  
Newark, NJ 07103 (USA)  
E-Mail zarbin@earthlink.net
Foreword

The European School of Advanced Studies in Ophthalmology (ESASO) was founded in 2008 and since then interest in its work has grown from all sides. It is now a respected institute, known to lecturers, young ophthalmologists, ophthalmology departments and suppliers of ophthalmological equipment around the world. The idea behind ESASO was to give young eye doctors the opportunity to learn new methods and become acquainted with different approaches to ophthalmological problems, acquiring a versatility that cannot be matched by a traditional medical school. Held mostly in Lugano, nestling by its beautiful lake in Switzerland, ESASO’s courses aim to widen the medical horizons of all those who enrol. But since its inception, the institute has expanded and now offers courses in other countries and even other continents, so that 5 years after being founded, it can claim to enjoy a worldwide reputation.

Some of the most esteemed experts in the different fields of ophthalmology lecture at ESASO, providing participants with fresh insights and the benefits of their invaluable experience. Over the years, the conviction grew in us that it was important to give this extensive knowledge wider currency, taking it beyond the limits of the lecture halls and labs, and it was decided to turn the lectures into publications. A few meetings made it clear that a book series was the best way to convey the scientific content of the courses to other ophthalmologists.

This first volume, concentrating on ‘Medical Retina’, will be followed by many others in the new ESASO Course Series. All the fields of ophthalmology will be covered in the series, each volume treating a topic in depth so as to provide the reader with the greatest possible amount of knowledge.

It is my hope that many a young ophthalmologist will benefit from the volumes published in the ESASO Course Series edited by Francesco Bandello and Borja Corcóstegui. Each volume will be supervised by a different and changing team of volume editors in order to diversify the input and keep abreast of an important ESASO principle: offer the best possible education!

G. Guarnaccia, Director Global ESASO
Preface

The retina is a truly unique tissue, which provides the field of medicine with the opportunity to study the anatomy and pathophysiology of an organ in a noninvasive manner. Basic scientists, guided by clinical research retinal specialists, have developed meaningful imaging modalities that have led to a better understanding of known retinal diseases as well as clinically distinct entities and their management.

The European School for Advanced Studies in Ophthalmology (ESASO) was founded in 2008 to address the specific further education needs of training and practising clinicians, drawing on the skills of colleagues worldwide and the support of various universities. It seeks to facilitate the dissemination of new and effective ophthalmological expertise through a dynamic combination of in-depth exposition of topics and direct face-to-face training.

This book is a collection of seminars by experts in the field of medical and surgical retina that have been presented during ESASO’s activities. The authors bring their personal experience and full teaching acumen to each chapter, culminating in a book on current management, new diagnostic techniques and experimental therapies for retinal diseases.

The many chapters are authored by internationally recognized experts in ophthalmology and visual science. As a multiauthored text, there are multiple literary styles. Thus, the editors have worked to provide a level of conformity without sacrificing the originality of the individual authors. Chapter topics range from molecular biology to state-of-the-art diagnostic techniques and the newest medical and surgical treatment options.

This book provides the ophthalmologist with the most recent data and evidence-based medicine on medical and surgical retina, while also including multiple areas still under debate.

Francesco Bandello, Milan
Giuseppe Querques, Paris